CLAIMS

What is claimed is:

1. A method of detecting a fungal species in a sample, comprising:

amplifying a fungal nucleic acid sequence in the sample using a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16; and

observing an amplified fungal nucleic acid sequence.

2. The method of claim 1, further comprising:

amplifying a fungal nucleic acid sequence in the sample using a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

3. The method of claim 1 wherein the sample is a feed or food sample.

4. The method of claim 1 wherein the sample is a livestock feed or food sample.

5. The method of claim 1 wherein the sample is a biological sample from a subject.

6. The method of claim 1 wherein the subject is a human.

7. The method of claim 1 wherein the subject is livestock.

8. The method of claim 1 wherein the subject is a ruminant.

9. The method of claim 1 wherein the subject is suspected of having jejunal hemorrhage syndrome.

10. The method of claim 1, further comprising:

quantifying the amplified fungal nucleic acid sequence.

11. The method of claim 1, further comprising:

identifying a detected fungal species by correlating the observed fungal nucleic acid sequence with a fungal species.

12. The method of claim 1 wherein observing the amplified nucleic acid sequence comprises measuring the amplified nucleic acid sequence.

13. A method of diagnosing jejunal hemorrhage syndrome in a subject, comprising:

amplifying a fungal nucleic acid sequence present in a subject biological sample using a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16;

observing the amplified fungal nucleic acid sequence; and

diagnosing jejunal hemorrhage syndrome in the subject.

14. The method of claim 13, further comprising:

amplifying a fungal nucleic acid sequence in the sample using a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

15. The method of claim 13 wherein observing the amplified fungal nucleic acid sequence comprises measuring the amplified fungal nucleic acid sequence.

16. A method of diagnosing jejunal hemorrhage syndrome in a subject, comprising:

amplifying a fungal nucleic acid sequence present in a sample of the subject's feed or food using a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16;

observing the amplified nucleic acid sequence; and

diagnosing jejunal hemorrhage syndrome in the subject.

17. The method of claim 16, further comprising:

amplifying a fungal nucleic acid sequence in the sample using a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

18. The method of claim 16 wherein observing the amplified nucleic acid sequence comprises measuring the amplified nucleic acid sequence.

19. A method of detecting fungal contamination in a feed or food sample. The method includes amplifying a fungal nucleic acid sequence present in a feed or food sample using a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16; and

observing or measuring the amplified nucleic acid sequence.

20. The method of claim 19, further comprising:

amplifying a fungal nucleic acid sequence in the sample using a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

21. The method of claim 19, further comprising:

measuring fungal contamination in the feed or food sample.

22. The method of claim 19 wherein the feed or food is livestock feed or food.

23. An isolated nucleic acid comprising:

a nucleic acid sequence at least 85% identical to the nucleic acid sequence set forth as SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

24. The isolated nucleic acid of claim 23, comprising:

a nucleic acid sequence at least 90% identical to the nucleic acid sequence set forth as SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

25. The isolated nucleic acid of claim 23, comprising:

a nucleic acid sequence at least 95% identical to the nucleic acid sequence set forth as SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

26. The isolated nucleic acid of claim 23, comprising:

a nucleic acid sequence set forth as SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

27. A kit for detecting or measuring fungal contamination in a sample, comprising:

a container; and

a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

28. The kit of claim 27, further comprising:

a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

29. The kit of claim 27 wherein the sample is a biological sample.

30. The kit of claim 27 wherein the sample is a feed or food sample.

31. The kit of claim 27, further comprising:

a preservative.

32. The kit of claim 27, further comprising:

use instructions.

33. A kit for diagnosing jejunal hemorrhage syndrome, comprising:

a container; and

a primer selected from the group consisting of: SEQ. ID NO 5, SEQ. ID NO 6, SEQ. ID NO 7, SEQ. ID NO 8, SEQ. ID NO 9, SEQ. ID NO 10, SEQ. ID NO 11, SEQ. ID NO 12, SEQ. ID NO 13, SEQ. ID NO 14 and SEQ. ID NO 16.

34. The kit of claim 33, further comprising:

a primer selected from the group consisting of: SEQ. ID NO 1, SEQ. ID NO 2, SEQ. ID NO 3, SEQ. ID NO 4, and SEQ. ID NO 15.

35. The kit of claim 33, further comprising:

a preservative.

36. The kit of claim 33, further comprising:

use instructions.